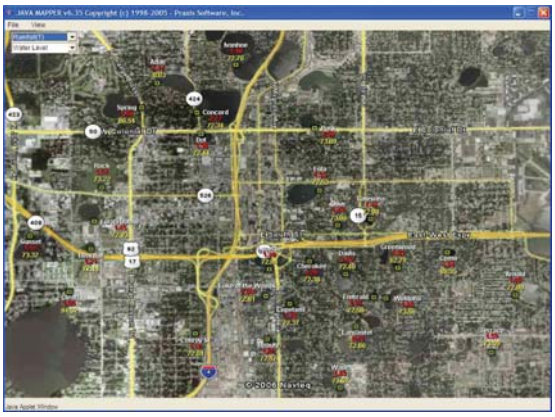
Case Study

Stormwater Utility Department

Background

"We care about Orlando's lakes." The Stormwater Utility Department of the City of Orlando takes great pride in providing up-to-date, quality information about Orlando's lakes. The Stormwater Utility Department has this and many other responsibilities. They maintain the database used to support the Stormwater Utility billing system, monitor and ensure compliance with the City Stormwater Utility code, maintain and support necessary monitoring data for the quality and preservation of Orlando's lakes and serve as the City liaison for lake water quality data. They provide responsible environmental and ecological management of the lakes and stormwater facilities throughout the City of Orlando. Stormwater Utility also involves the community by working with various neighborhood associations, schools, and local businesses to inform the public of pollutant loading reductions into their lakes. Classes, articles, brochures and volunteer opportunities are offered so citizens may work hand-in-hand with Stormwater to keep City lakes beautiful.

Challenge



In accordance with the Clean Water Act of 1972, the Florida Department of Environmental Protection (DEP) requested that the Stormwater Utility Department of the City of Orlando, along with all other municipalities implement a Total Maximum Daily Loads Program (TMDL). A TMDL is a calculation of a maximum amount of a pollutant or nutrients that a waterbody can receive and still meet water quality standards. This program was put into practice in order to strengthen efforts to improve water quality, and to meet the state's Water Quality Standards (WQS).

The Stormwater Department faced other challenges as well. They needed a system that could accurately measure and record rainfall in real time to allow forewarning of potential flood conditions. They wanted to collect and archive data for future planning of stormwater systems and land development. Plus they sought a system that could be updated with various sensors as needed.

The SensorActive™ Solution

Praxis Software's SensorActive solution was introduced and implemented at various lakes within the City of Orlando in 2004. It has recently been expanded to be used for hydrological monitoring at 50 additional sites and now covers a majority of the City's lakes.

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SensorActive is a unique combination of hardware and software for the collection and display of data from multiple sensors. As a system solution, SensorActive integrates environmental monitoring with state-of-the-art communications technologies to enable early warning and continual monitoring of assets and potential hazards. SensorActive delivers real-time information to improve environmental data collection, land use and remote monitoring. Automatic alarms may be set to warn officials of potentially dangerous conditions and data can be viewed in real time via a Web applet.

Results

SensorActive has helped the Stormwater Utility Department of Orlando gather important data on rainfall amounts and water levels to gain a clearer picture of pollutant sources and to better meet the state's Water Quality Standards. Continuous water level data are used to determine the amount of flow discharged from the City of Orlando to downstream TMDL water bodies such as Lake Jessup. Flow data is then used with water quality monitoring data to accurately establish the amount of pollutants; such as phosphorus, which are being discharged so verification of compliance with the TMDL regulations can be made. Since most of the pollutants entering urban lakes are generated from stormwater runoff, the City uses rainfall data to determine the actual amounts of pollutants from the different lake watersheds. This information is then used to prioritize stormwater retrofit projects to reduce pollutant loading to their lakes.

According to Kevin McCann, Assistant Division Manager Streets and Stormwater, City of Orlando, there are three main reasons for use of the SensorActive system. "We want to have advanced warning of flood conditions, be able to collect data for the design of future stormwater systems, and to monitor pollutant loading." Real-time monitoring of lake levels and rainfall along with automatic alarming can provide the department advanced warning for unusually heavy rain events and potential flood conditions. The data collection is especially useful to aide in the design of stormwater systems since we can evaluate how much flow is produced in a given basin for different rain events and how lake level responds. The system also benefits the department in its efforts to monitor pollutant loading with respect to TMDLs. The Stormwater Utility Department is achieving its goals and objectives with the implementation of the SensorActive real-time monitoring system. According to the most recent Stormwater Utility Lake Water Quality Report, 95.6% of the City lakes have either maintained or improved their water quality.

Client's View

"This technology allows us to automatically collect and archive a large amount of valuable data which is used to manage and improve our stormwater program as well as provide better service to our citizens."

Kevin McCann, Streets and Stormwater
Assistant Division Manager, City of Orlando

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